

All-Terrain Wheel Chair

CSK OVERRUNNING CLUTCH

PROBLEM

Mountain Trike, a wheelchair designed specifically for use off-road and in difficult terrain, puts a strain on the chair components and sourcing parts that could withstand these tough environments. The wheelchair uses a unique lever drive system that allows the user to power, steer and brake the Trike using two levers which are positioned in front of them.

The levers are connected to the wheels using similar technology to that found on a traditional mountain bike and power each wheel independently.

Rather than a standard bike freewheel, the Mountain Trike's designer specified an overrunning clutch to transmit the kinetic energy from the levers to the wheels. Initial clutches seemed to perform well on test models but over time poor seals allowed mud and debris to creep inside which caused seizing. Poorly machined internal components led to slipping and, eventually, total failure due to the repeated shock loading caused by disengaging and engaging the drive train with every push.

SOLUTION

Due to their reputation for reliability in tough industrial applications, Stieber Clutch was approached to solve the problem. Stieber supplied CSK PP overrunning clutches with a keyway on both the inner and outer race to meet the application challenge. CSK units feature ultra-hard Formchrome® sprags which provide extra-long life, maximum wear resistance and lower maintenance costs. Formchrome sprags – exclusive with Stieber Formsprag – are made by diffusing chromium into the surface of hardened high carbon alloy steel to form a chromium-carbide alloy.



HIGHLIGHTS

- Sprag type overrunning clutch integrated into a 62 Series ball bearing
- Keyway on both the inner and outer race
- 133 lb.in. (180 Nm) torque capacity
- Formchrome® sprags for long life



Regal Rexnord

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